

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-25 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

ENTRY OF AMENDMENT

Applicants are submitting the present Amendment along with a Request for Continued Examination. Accordingly, consideration of the present Amendment is considered to be proper. It is noted that the Amendment filed on May 16, 2005 has not been entered and instead, the present Amendment is being submitted. Claims 6, 11 and 14-25 which were cancelled in the non-entered Amendment of May 16, 2005 have not been cancelled and are now in the form presented in the Amendment of November 30, 2004.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-5, 7-18 and 20-25 stand rejected under 35 U.S.C. § 103 as being obvious over Berger et al. (U.S. Patent 6,528,145) in view of Nishide et al. (U.S. Patent 5,827,605) and Zak (U.S. Patent 6,006,427). This rejection is respectfully traversed.

Claims 6 and 19 stand rejected under 35 USC 103 as being obvious over Berger et al., Nishide et al. and Zak, as applied above, and further in view of

Czjakowski et al. (U.S. Patent 6,613,978). This rejection is respectfully traversed.

The Examiner cited Berger et al. to show an inorganic substrate having wiring formed thereon and may be connected to a print circuit board. The Examiner admits that the reference does not teach organic print circuit boards and at least one passive component formed on the inorganic substrate.

Berger et al. provides the composite substrate as a low dielectric constant (less than 4) and a low CTE (8 to 14 ppm/°C at 100°C). Fig. 1 of Berger shows a first embodiment having a ceramic filled polymer substrate while Figs. 2 and 3 show a second embodiment with a polymer filled ceramic substrate. The composite substrate is formed by mixing the ceramic and polymeric material. Berger et al. does not disclose the organic substrate or print circuit boards located on the inorganic substrate. The organic substrate of the present invention does not need an inorganic filler.

The Examiner cited Col. 10, lines 32-45 as showing substrates located on the inorganic substrate. Applicants submit that this section discusses the first embodiment of ceramic filled polymer substrates which are formed by stacking multiple layers of ceramic filled polymeric material 12. Also, this section discloses a surface mount technology. Thus, this section of Berger et al. does not disclose the organic substrates or print circuit boards located on an inorganic substrate. Further, a Ball Grid Array is the surface mount technology for joining the substrate to the print circuit board by the solder ball.

The bonding layer of the present invention is formed between the inorganic substrate and the organic substrate. The bonding layer of the present invention is quite different from the ball grid array.

Col. 12, lines 29-36 discusses the second embodiment where a composite substrate 20 includes multiple layers of ceramic 22 having pores 28 filled with polymeric material 30. Thus, the composite substrate is formed by mixing the ceramic and the polymeric material. Fig. 2 does not disclose the organic substrates located on the inorganic substrate.

Col. 12, lines 34-36 discuss the variant of the second embodiment shown in Fig. 3. In this variant, the composite substrate 20' is formed by mixing the ceramic 22 with the polymeric material 34. However, the variant of Fig. 3 also does not disclose the organic substrates located on the inorganic substrate. Accordingly, Berger et al. does not disclose a passive component formed on the inorganic substrate and circuits formed on the organic substrates. Col. 12, lines 43-46 discuss the polymeric material 32 sealing the outside of the composite substrate 20' and is either removed from or prevented from depositing in areas 34 so that electrical connection can be made to a semiconductor or a PCB. The polymeric material 32 is used for sealing. The organic substrate of the present invention is not used for sealing.

The Examiner relies on Nishide et al. to teach the use of an inorganic substrate having at least a passive component formed thereon. The Examiner relies on Zak to teach the use of the organic circuit boards. Applicants submit

that even if the three references are combined, there is no disclosure of the organic substrates located on the inorganic substrate.

The Examiner cites the Czjakowski et al. reference to teach the print circuit boards formed on a ceramic substrate.

Applicants submit that the combination of references does not have circuits for electrical connections. Applicants submit that Czjakowski et al., whether taken alone or in combination with the other references, does not show this structure.

Applicants furthermore suggest that it is not obvious to combine the teachings of the four references into this claimed construction. Applicants again suggest that there would be no motivation to combine these four references. The Examiner's only motivation provided is to reduce the cost of making the device. Admittedly the cost of manufacture is always a consideration in any art. However, the question is what would motivate one skilled in the art to think about using a combination of inorganic and organic substrates and the use of a plurality of organic circuit boards on each side of the inorganic substrate? Applicants submit that this is not shown in any manner by the Examiner. The mere cost alone would not suggest such a combination. Further, the use of the same material would tend to suggest a lower cost, thus teaching against the concept of having an inorganic central substrate and two organic substrates provided on either side. Accordingly,

Applicants submit that the present invention is not obvious over this combination of references.

In view of the above, Applicants submit that independent claims 1 and 14 are not obvious over this combination of references.

Claims 2-13 depend from claim 1 and claims 15-25 depend from claim 14 and as such are also considered to be allowable. In addition, these claims cited other features which make them additionally allowable.

CONCLUSION

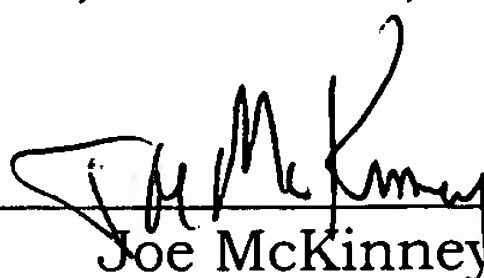
In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, reconsideration of the rejections and allowance of all the claims are respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert F. Gnuse (Reg. No. 27,295) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants respectfully petition for a one-month extension of time for filing a reply in connection with the present application, and the required fee of \$120 is attached hereto

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,
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